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and 2600. With all powers the star appeared round. On these dates the seeing was excellent and stood all these powers perfectly. On the last date the seeing was perhaps the best. Even at Mt. Hamilton we have few nights that are better in the course of a year. With such conditions as then prevailed an elongation of a tenth of a second would have been readily perceptible with the lowest power used, and a considerably smaller distance would have been noted with the higher ones. At the times of these observations the star was between three and four hours east of the meridian. On August 5th color-screens of various shades were used a part of the time to reduce the light. On this date Mr. PERRINE was with me. He also made a very careful examination of the star with all powers, without detecting any elongation.

W. J. HUSSEY.

MT. HAMILTON, Aug. 10, 1900.

NOTE ON *CAPELLA* AS A DOUBLE STAR.

The elements deduced from the spectroscopic observations of this binary system indicated the possibility that the two components might be sufficiently separated to be seen directly with the 36-inch refractor. The star was therefore examined with that instrument under good conditions on the evenings of February 24th, and April 16th, and on the mornings of July 22d, July 29th, and August 11th. Once or twice, especially on the first night, a slight elongation was suspected, but settings with the micrometer ranged over  $60^{\circ}$ , showing that no real elongation was observed. On the morning of July 29th, the seeing was very good; several very difficult stars were measured shortly before turning to *Capella*; and the latter star was followed for over an hour, using eye-pieces of all powers to 2600, with and without shades of red and orange glass, but no certain elongation could be detected. The spectroscopic observations show that the separation of the two components was a maximum on the dates February 22d, April 15th, and July 28-29th.

R. G. AITKEN.

September, 1900.

THE TRIPLE STAR  $\kappa$  *PEGASI*.

The visual double star having the shortest known period of revolution is the fourth-magnitude star  $\kappa$  *Pegasi*. It was discovered by BURNHAM in 1880 with the 18½-inch telescope, and

is one of the very difficult stars on his list. The approximate magnitudes of the two components are  $4\frac{1}{2}$  and 5. The major semi-axis of the relative elliptic orbit of one around the other is  $0''.4$ , and the period of revolution is a little over eleven years. The present distance between the components is less than  $0''.2$ , in position-angle  $260^\circ$ .

One of the components — probably the component whose spectrum is the stronger in the blue region — is a spectroscopic binary.  $\kappa$  *Pegasi* is therefore a triple star of more than usual interest. The shifting of the lines in the spectrum, as observed with the Mills spectrograph, have furnished the following velocities of one component, with reference to the solar system:

| DATES.        | VELOCITY.          |
|---------------|--------------------|
| 1896, Aug. 31 | — 43 <sup>km</sup> |
| 1899, July 17 | — 41               |
| 1900, Aug. 6  | + 35               |
| " 7           | + 27               |
| " 8           | — 16               |
| " 12          | + 35               |
| " 21          | — 45               |
| " 22          | — 34               |

The variation in the velocity was discovered from the third plate. The period of rotation of the bright component around an invisible companion is about six days.

Changes in the appearance of the spectrum have been noted, but I have not yet determined their nature.

On account of the closeness of the two visual components, it is impossible to secure their spectra separately; and for this reason I am not able to state which visual component is the spectroscopic binary.

W. W. CAMPBELL.

#### A NEW PLANETARY NEBULA.

While examining Comet *b* 1900 (BORRELLY-BROOKS) with the 12-inch telescope on the evening of August 31st, I found D.M.  $+83^\circ 357$  ( $9.4''$ ) to be a small nebula instead of a star. An examination with the 36-inch telescope on the following night showed that the object was a nebulous star or very small planetary nebula. The nucleus is stellar, of about  $10\frac{1}{2}$  to 11 magnitude, and is centrally placed in a round nebulous envelope which is between  $5''$  and  $6''$  in diameter. The nebula as a whole is about as bright as a 9.5 magnitude star. A 13-magnitude star precedes  $14.8''$  in  $263^\circ$ . The position of the nebula for 1855.0 is  $12^h 29^m 10^s$ ,  $+83^\circ 21.8''$  (B. B. VI.).

R. G. AITKEN.